

**US Army Corps
of Engineers
Baltimore District**

**Delivery Order No. 0006
Total Environmental
Restoration Contract
DACA31-95-D-0083**

FORT TOTTEN SITE INVESTIGATION AND REMEDIATION

**Work Plan
Addendum**

DRAFT DOCUMENT

October 1997

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**WORK PLAN ADDENDUM FOR FORT TOTTEN
SITE INVESTIGATION AND REMEDIATION**

DRAFT DOCUMENT

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OCTOBER 1997

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Daily Quality Control Report

Type II Corrective Action Request

Type I Corrective Action Request

Chain-of-Custody Form

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Areas that Potentially Contain UXO

LIST OF ACRONYMS

BRAC—Base Realignment and Closure Program
CAR—Corrective Action Request
CGI—Combustible Gas Indicator
CO₂—Carbon Dioxide
CRL—Certified Reporting Limit
CQC—Contractor Quality Control System Manager
CQMP—Chemical Data Quality Management Plan
DQOs—Data Quality Objectives
EOD—explosive ordnance disposal
H&S—Health and safety
HASP—Health and Safety Plan
HPLC—High Performance Liquid Chromatography
HSA—hollow-stem auger
HTRW—Hazardous, Toxic, Radioactive Waste
ICF KE—ICF Kaiser Engineers
ID—identification
ID—inner diameter
LEL—Lower Explosive Limit
LQMP—Laboratory Quality Management Plan
M&TE—measurement and test equipment
N₂—Nitrogen
NFPA—National Fire Protective Association
NYDEC—New York State Department of Environmental Conservation
OSHA—Occupational Safety and Health Association
PE—Performance Evaluation
PID—photoionization detector
PPE—Personal Protective Equipment
PVC—polyvinyl chloride
QA—Quality Assurance
QC—Quality Control
RPD—Relative Percent Difference
SOP—standard operating procedure
STP—sewage treatment plant
SVOCs—Semivolatile Organic Compounds
TAL—target analyte list
TCLP—Toxicity Characteristic Leaching Procedure
TCL—target compound list
TERC—Total Environmental Restoration Contract
TPH—total petroleum hydrocarbons
USACE—U.S. Army Corps of Engineers
USCS—Unified Soil Classification System
USEPA—U.S. Environmental Protection Agency
UST—Underground Storage Tank
UTM—Universal Transverse Mercator
VOCs—Volatile Organic Compounds

1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE) has tasked ICF Kaiser Engineers (ICF KE) to perform investigative tasks for sites previously identified at Fort Totten. Fort Totten is located in northeast Queens County, Long Island, New York. The purpose of this work is to support the eventual excessing and transfer of property in accordance with 1995 Base Realignment and Closure Program (BRAC). The initial investigation and report were completed following the September 1996 Work Plan. Work for this assignment will be performed under Contract No. DACA31-95-D-0083, Delivery Order 0006.

This Work Plan Addendum presents the proposed technical approach for conducting additional specified field activities at Fort Totten and provides a generalized discussion of the programs which will support the investigation (e.g. Quality Assurance (QA), Quality Control (QC) and Laboratory/ Data Management). This Work Plan provides descriptions of the sampling procedures or protocols that will be used for conducting field operations, and details the sample collection techniques, and removal action protocols to be used during the performance of additional field activities. The Work Plan is based on:

- a. Objectives presented in the Scope of Work, Delivery Order Number 0006;
- b. Evaluation of previously submitted Reports on Fort Totten;
- c. Discussions with the USACE and Fort Hamilton Environmental Office; and
- d. Results of site visits that took place from February, 1996 to July, 1997.
- e. Final Site Investigation and Remediation Report, May 1997 (USACE, 1997).

The proposed work will be conducted in accordance with USACE, U.S. Environmental Protection Agency (USEPA), and the New York State Department of Environmental Conservation (NYDEC) requirements and fully complies with the Health and Safety Plan (HASP) included with this submittal, under separate cover.

1.1 PROJECT ORGANIZATION AND RESPONSIBILITIES

Exhibit 1-1 denotes the line of authority and project organization for the proposed work at Fort Totten. Exhibit 1-2 provides the names, titles, addresses and phone numbers of personnel responsible for ensuring the execution of the project.

3.10 ADDITIONAL FIELD SAMPLING AND REMEDIATION

3.10.1 Shorelines - Sediment Sampling

8.2
Sediment samples were collected in Little Bay to investigate potential mercury contamination from reported spills at the adjacent U.S. Coast Guard property (Exhibit 3-6). Eight sediment samples (FTSE01-FTSE08) were collected from 0-0.3' along the shoreline in Parcel 79 and six sediment samples were collected along the shoreline in Parcel 62 in October 1996 (USACE, 1997). Mercury was detected in samples FTSE06 (0.18 $\mu\text{g/g}$) and FTSE09 (0.15 $\mu\text{g/g}$) above the New York State Recommended Soil Cleanup Objective (NYSRSCO). Additional sediment samples will be collected from a total of 52 locations in Little Bay (Exhibit 3-6). The samples are to be divided among areas in Parcels 62 and 79. Parcel 79 contains 32 underwater sediment sample locations approximately 100 feet apart in a rectangular grid. Parcel 62 contains 8 underwater sediment sample locations approximately 100 feet apart in a triangular grid. Sample locations will be predetermined using a Global Information System (GIS) and will be plotted on a map. A list of coordinates, also generated through the GIS, will be used in the field along with a Global Positioning System (GPS) to locate each sample. The remaining 12 sediment samples will be collected along the Little Bay Shoreline. Seven samples at the Parcel 79 area will be sampled in between the locations collected previously and 5 samples at the Parcel 62 area will be collected in between the locations sampled previously.

For each underwater sample location, a two foot deep core will be collected and further divided vertically into two one foot subsamples. To collect a sediment core of this length, a gravity core sampler will be used. Sediment samples can be retrieved in water depths up to approximately 50 feet. The core sampler will be deployed from a 23 foot boat rigged with a davit and an electric winch. The sampler will be decontaminated prior to and between each use, and will be lowered to the bottom where the sediment will be collected. The core sampler will then be retrieved and opened. Each subsample will be immediately containerized in pre-labeled jars which will be placed in a cooler containing double bagged ice.

All samples will be analyzed for mercury only.

Potential Mitigating Factors

- **Bottom Type** - The bottom type can greatly influence the efficiency of sediment sampling. A soft, silt/clay bottom can be easily sampled to two feet, whereas a sandy or rocky bottom will be next to impossible to sample to two feet with a gravity corer.
- **Accessibility/Security** - If the boat must be driven a great distance (more than a few miles) by water or by road prior to arriving on site, because of either security or accessibility issues, the number of samples collected in each day will likely be reduced.
- **Weather/Exposure of Site** - Although this factor is out of our control, it should be noted that weather can directly affect the efficiency of the field effort. Typically, wind is the most influential weather factor because the waves it creates cause the boat to become a less stable work platform. While we have the expertise to sample in very difficult conditions, the safety of the crew will always be a primary concern.

3.10.2 Old Fort Area (Parcel 61)

The BRAC Parcel 61 area of investigation is adjacent to a former U.S. Coast Guard drum storage area (Exhibit 3-8). Releases in the drum storage area may have resulted in soil contamination in this area. Soil sample FTSS13 (0-2'bgs) was collected in October 1996 and contained mercury (0.51 $\mu\text{g/g}$) above the NYSRSCO (USACE, 1997). The area sampled is slightly down slope from the drum storage area. Soil borings were attempted in this area, but were met with refusal at a depth of approximately 2 feet. A slab of concrete or other hard road surface material may underlie this area.

Additional soil samples will be collected at three locations 2 - 3 feet east, west, and north of previous sampling location FTSS13 in the area of a former Coast Guard drum storage area (Exhibit 3-8). The samples will be collected from the surface soils (0 - 2 ft) and will be analyzed for total and TCLP mercury. The results will be requested on a rapid turnaround basis (48 hours). Based on these results, soil removal may be required.

3.10.3 Asbestos Survey

An asbestos survey and removal has been undertaken at approximately 36 buildings by a tenant, the NYC Fire Department. An additional asbestos investigation will be performed at Fort Totten. The asbestos survey will include review of the Fire Department reports and documentation covering these buildings and a walkthrough of these buildings and all other BRAC buildings available for inspection to complete the following:

1. Identification of asbestos containing material (ACM) confirmed by a bulk sample if necessary when not obvious from visual inspection.
2. Confirm results of previous Fire Department inspections and abatements.
3. Provide summary documenting findings at each building inspected.

3.10.4 BEC - GIS Mapping

The scope of the mapping includes 6-24 inch x 36 inch maps as follows: 1 site map, and 5 site utility overlay maps for storm sewers, sanitary sewers, telephone, electrical and water.

The mapping will be provided by scanning the best available base maps for the site utilizing REPROSCAN Scanning Services to provide CAD Ready Files. It is also assumed that it will take one day in the field to confirm or mark-up the site map for changes regarding buildings/sheds, etc. These changes will then be made to the CAD Ready Files and transmitted to Fort Hamilton. The 5 utility maps will be modified or updated based on a meeting with the appropriate person at Fort Hamilton to provide information regarding changes. No field verification is included for the utility maps as requested by the client.

6.0 SCHEDULE

The Delivery Order Schedule (Exhibit 6-1) developed for this delivery order indicates the planned activities, the sequence of activities and duration of each for every month of the task. Adjustments to this schedule will be made only following consultation with the USACE Baltimore and New York Districts.

DO6 MODIFICATION SCHEDULE

Authorization to Proceed	9/30/97
Draft Work Plan Addendum	10/6 - 10/24
Comments	10/27 - 11/7
Final Work Plan Addendum	11/10 - 11/21
Selection of Subcontractors	10/13 - 11/21
Field Preparation	12/1 - 12/5
Field Work	12/8 - 12/20
Lab Analysis	12/8 - 1/30/98
Draft Report	12/29 - 2/27
Comments	3/2 - 3/13
Final Report	3/16 - 4/3

7.0 REFERENCES

Hill Environmental, Inc. 1995 Interim Report Site Investigation For Groundwater Contamination At Fort Totten, New York.

Hill Environmental, Inc. 1995 Site Investigation For Soil Contamination At Fort Totten and Fort Hamilton, New York.

ICF Kaiser Engineers, Inc, 1995 ICF Kaiser Quality Control Program for USACE Contracts.

New York State Department of Environmental Conservation. 1992 Sampling Guidelines and Protocols. Technological Background and Quality Control Quality Assurance for NYSDEC Spill Response Program.

New York State Department of Environmental Conservation. 1992 STARS Memo #1 Petroleum-Contaminated Soil Guidance Policy.

New York State Department of Environmental Conservation. 1994 SPOTS Memo # 14 Site Assessment at Bulk Storage Facilities.

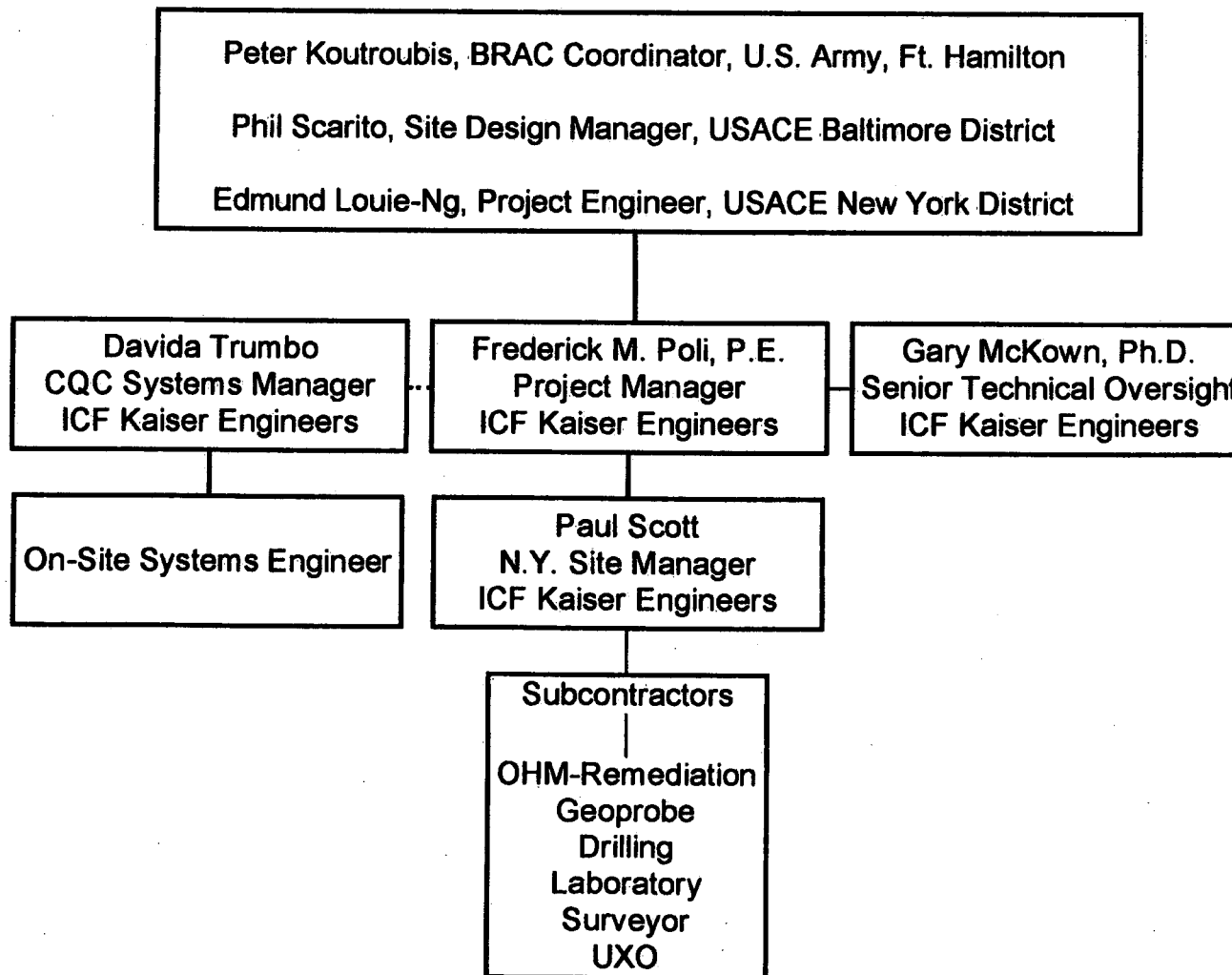
New York State Department of Environmental Conservation. 1994 Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup levels.

New York State Department of Environmental Conservation. 1993 Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

New York State Department of Environmental Conservation. Guidelines for Exploratory Boring, Monitoring Wells Installation, and Documentation of these Activities.

U.S. Army Corps of Engineers. 1997 Fort Totten. U.S. Army Facility Site Investigation, Final Document. Prepared by ICF Kaiser Engineers.

**Exhibit 1-1
Organization Chart
for Fort Dix BRAC 1995 Project
Delivery Order No. 6
Fort Totten**



**EXHIBIT 1-2
KEY INDIVIDUALS FOR DELIVERY ORDER 6
NEW YORK SITES**

NAME	TITLE	ADDRESS	PHONE NUMBER
Peter Koutroubis	Fort Hamilton Environmental Office Representative	Fort Hamilton Army Base DPW Building 129 Attn: Atzt-FHE-V Brooklyn, New York 11252-6800	718-630-4485 Fax 718-630-4485
Phil Scarito	USACE Design Manager	Attn: CENAB-EN-HM P.O. Box 1715 Baltimore, MD 21203-1715	410 962-6731 Fax 410-962-6732
Edmund Louie-Ng	USACE New York District	Fort Totten Building 611, Totten Ave Flushing, NY 11359	718-352-1888 Fax 718-352-0440
ICF KAISER ENGINEERS			
Chuck Debelius	ICF KE TERC Program Manager	9300 Lee Highway Fairfax, VA 22031-1207	(703) 934-3130 Fax 703 218-2690
Gary McKown	ICF KE Senior Technical Oversight	2113 Emmorton Park Road Edgewood, MD 21040	(410) 612-6358 Fax 410 612-6351
Fred Poi	ICF KE Project Manager	2113 Emmorton Park Road Edgewood, MD 21040	(410) 612-6314 Fax 410 612-6351
David Trumbo	ICF KE CQC Systems Manager	2113 Emmorton Park Road Edgewood, MD 21040	(703) 934-3027 Fax 703 218-2690
Paul Scott	ICF KE New York Site Manager	2113 Emmorton Park Road Edgewood, MD 21040	(410) 612-6320 Fax 410 612-6351
SUBCONTRACTORS			
Mike Evanko	OHM Remediation Services Corp. (Removals, Paint abatement, PCB Surveys)	200 Horizon Center Blvd Trenton NJ 08691-1904	(609) 588-6382 Fax (609) 443-4091
	Soil Safe Incorporated (off-site disposal of contaminated soil)	4600 East Fayette Street Baltimore, MD 21224	800-562-4365 Fax 410-327-6960
Charles Wharton	UXO Environmental Specialists, Inc.	Route 1, Box 232 Belvedere, NC 27919	919-297-2991 Fax 919-297-2992

EXHIBIT 3-2
SOIL/SEDIMENT SAMPLING PROGRAM AT FORT TOTTEN

General Location of Soil/Sediment Samples	Proposed Number of Sample/Boring Locations	Proposed Sampling Depths (ft)	Sampling Method	Number of Samples for Chemical Analysis	Analyses
Soil					
Old Garage Area	1 boring	0-2 10-12 15-17	Split Spoon (HSA)	1 (composite)	TCLP (Pb)
Building 107	10 surface soils	0-2	Hand Auger	10	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics + cyanide
	4 borings	1-3, 5-7, 10-12	Split Spoon (HSA)	12	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics + cyanide (TCLP (Hg,Cr) on hold) ¹
Building 602 (Former 2,000-gallon Gasoline UST)	15 geoprobe borings	3-5 8-10 13-15	geoprobe (macro-core)	5 Samples from the 15 borings will be selected for analysis based on PID screening	USEPA 8021, 8270
Parade Grounds (BRAC Parcel 60)	1 geoprobe boring	3-5 8-10 13-15	geoprobe (macro-core)	1 (composite)	USEPA 8021, 8270
Building 336 (BRAC Parcel 77)	2 surface soils	0-2	hand auger	2	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics + cyanide
Old Fort (BRAC Parcel 78)	2 geoprobe borings	3-5 8-10 13-15	geoprobe (macro-core)	2 (composites)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics + cyanide
Little Bay Shoreline	14 (8 along BRAC Parcel 79; 6 along BRAC Parcel 62)	0-1	Hand Auger	14	Mercury

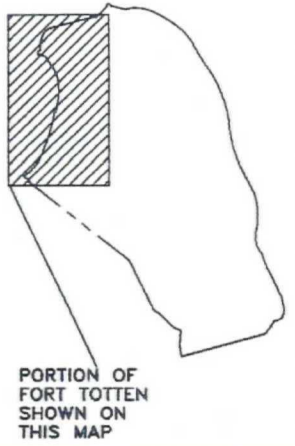
EXHIBIT 3-2 (Continued)
SOIL/SEDIMENT SAMPLING PROGRAM AT FORT TOTTEN

General Location of Soil/Sediment Samples	Proposed Number of Sample/Boring Locations	Proposed Sampling Depths (ft)	Sampling Method	Number of Samples for Chemical Analysis	Analyses
Additional Sampling					
Sediment					
Little Bay Shoreline	12 (7 along BRAC Parcel 79; 5 along BRAC Parcel 62)	0-1	Hand Auger	12	Mercury
Little Bay	40	0-2	Gravity Core Sampler	40	Mercury (24 - 48 hour TAT)
Soil					
Old Fort (BRAC Parcel 61)	1 geoprobe boring	3-5 8-10 13-15	geoprobe (macro- core)	1 (composite)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics + cyanide

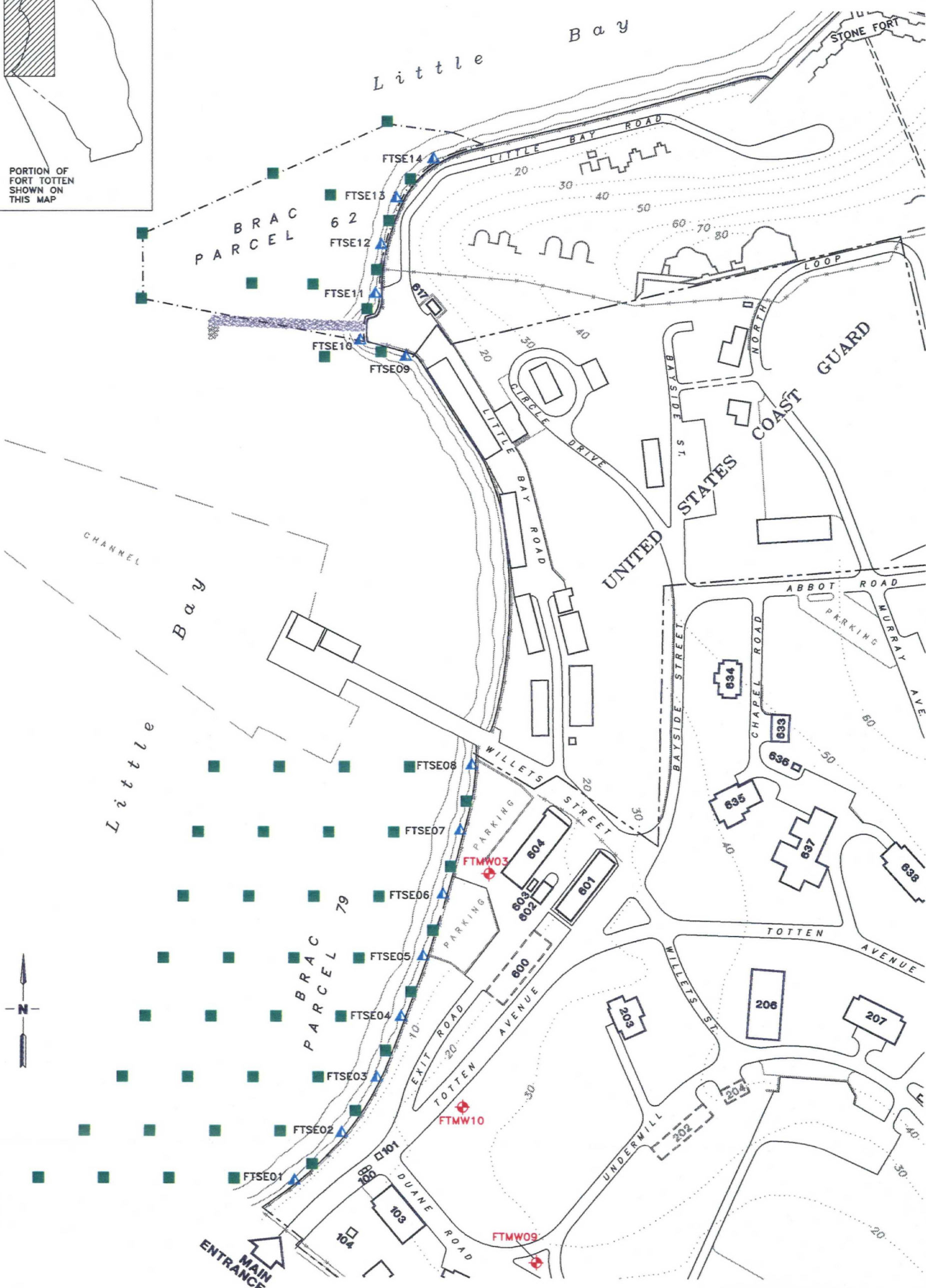
Legend:

TCLP: Toxicity Characteristic Leaching Procedure
TAL inorganics: USEPA Target Analyte List for inorganics
TCL VOCs: USEPA Target Compound List of volatile organic compounds
TCL SVOCs: USEPA Target Compound List of semi-volatile organic compounds
PCBs: polychlorinated biphenols

A sufficient quantity of soil will be collected and sent to the laboratory on hold for possible TCLP (Pb, Cr) analysis.

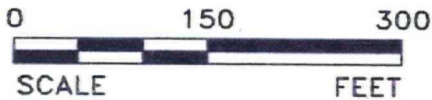


PORTION OF
FORT TOTTEN
SHOWN ON
THIS MAP



LEGEND:

- PROPERTY BOUNDARY
- - - - - FENCE
- ... TOPOGRAPHIC CONTOUR
- [] FORMER BUILDING LOCATION
- ▲ SEDIMENT SAMPLE LOCATION (OCTOBER, 1996)
- ◆ MONITORING WELL LOCATION
- PROPOSED SEDIMENT SAMPLE LOCATION



U.S. ARMY ENGINEER DISTRICT
US Army Corps of Engineers
NEW YORK, NY

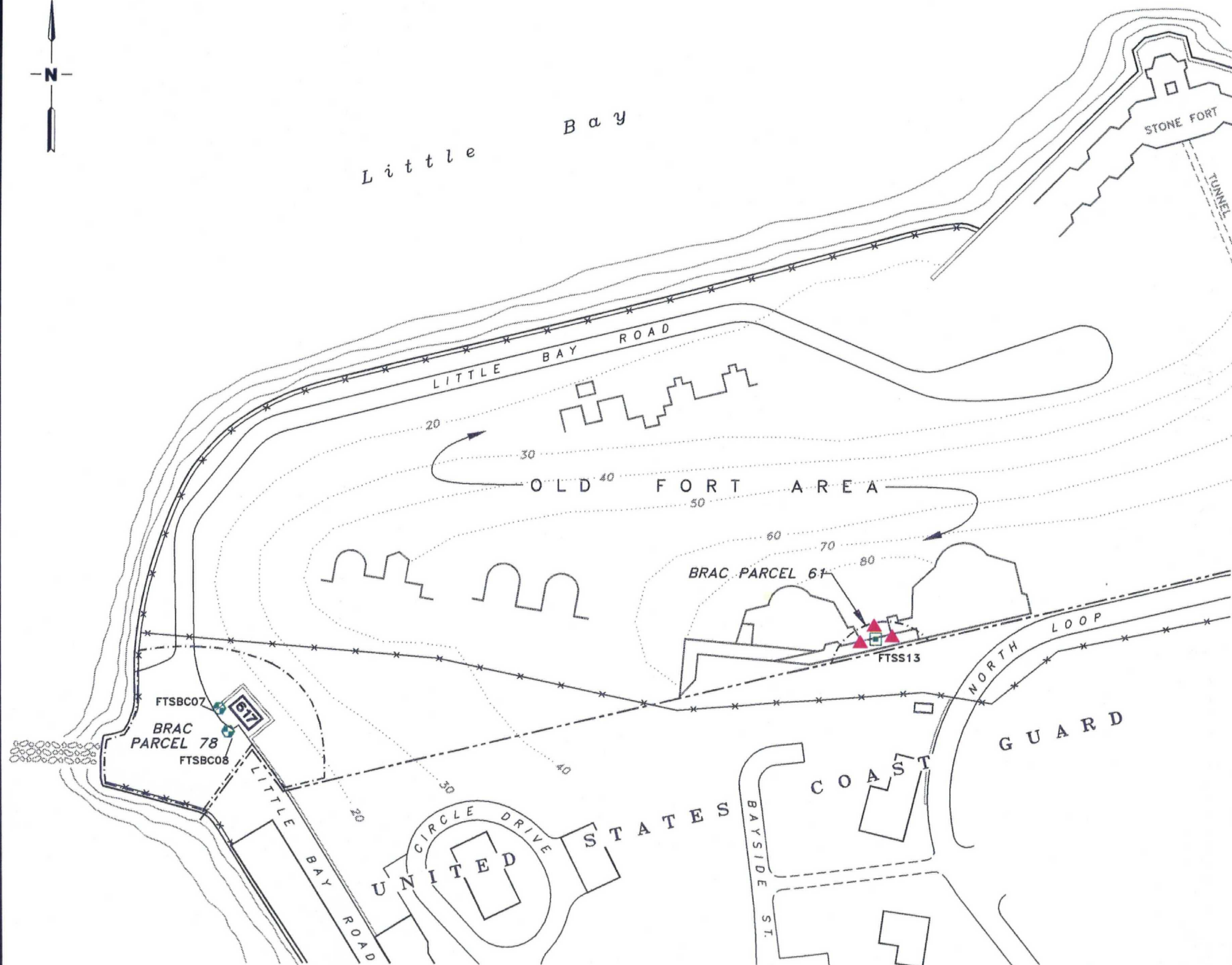


ICF KAISER
2113 EMMORTON PARK RD.
EDGEWOOD, MD. 21040
(410) 612-6350

REVISION NO.: DATE: 10-6-97 ACAD FILE: SHOR-SM1

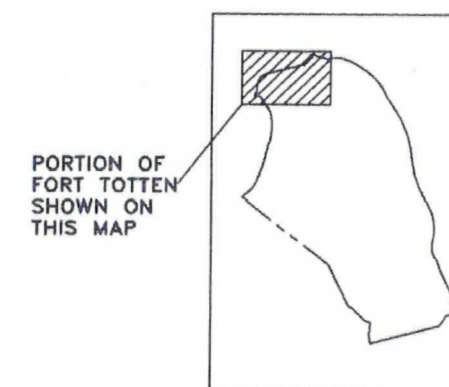
**PROPOSED SEDIMENT SAMPLE LOCATIONS
ALONG THE LITTLE BAY SHORELINE
IBRAC PARCELS 62 AND 79**

TASK NO.: 66706 SITE: FORT TOTTEN BAYSIDE, NY EXHIBIT NO.: **3-6**



LEGEND:

- PROPERTY BOUNDARY
- *-*-* FENCE
- TOPOGRAPHIC CONTOUR
- SOIL BORING LOCATION (OCTOBER, 1996)
- SHALLOW SUBSURFACE SOIL SAMPLE LOCATION (OCTOBER, 1996)
- PROPOSED SOIL SAMPLE LOCATION



PORTION OF
FORT TOTTON
SHOWN ON
THIS MAP

0 75 150
SCALE FEET

U.S. ARMY ENGINEER DISTRICT
US Army Corps of Engineers
NEW YORK, NY

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REVISION NO.: DATE: 10-6-97 ACAD FILE: OLDF-SM1

**PROPOSED SAMPLE LOCATIONS
IN THE OLD FORT AREA
(BRAC PARCEL 61)**

TASK NO.: 66706 SITE: FORT TOTTON
BAYSIDE, NY

EXHIBIT NO.:
3-8

T.O. #6 Modification Schedule
New York Sites

ID	Task Name	Duration	Start	Finish	1998																	
					Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Authorization to Proceed	1d	9/30/97	9/30/97																		
2	Draft Work Plan Addendum	15d	10/6/97	10/24/97		■																
3	Comments	10d	10/27/97	11/7/97			■															
4	Final Work Plan Addendum	10d	11/10/97	11/21/97				■														
5	Selection of Subcontractors	30d	10/13/97	11/21/97		■	■	■														
6	Field Preparation	5d	12/1/97	12/5/97				■														
7	Field Work	10d	12/8/97	12/19/97					■													
8	Lab Analysis	38d	12/8/97	1/30/98				■	■	■												
9	Draft Report	44d	12/29/97	2/27/98					■	■	■	■										
10	Comments	9d	3/3/98	3/13/98									■									
11	Final Report	14d	3/17/98	4/3/98																		

Project: 66706
Date: 10/23/97

Task

Progress

Milestone

Summary

Rolled Up Task

Rolled Up Milestone

Rolled Up Progress

ADD TO SITE HEALTH AND SAFETY PLAN

6.4 SEDIMENT SAMPLING

To ensure the health and safety of personnel involved in the collection of sediments from the waters surrounding Fort Totten the following safety protocols are proposed.

- The operator of the boat must demonstrate significant experience in the handling and navigation of small watercraft. Certification by the U.S. Coast Guard is preferred.
- All personnel on the boat will wear U.S. Coast Guard approved Type III Personal Flotation Devices at all times.
- If weather conditions do not permit safe operation of the boat and/or impose extreme and unsafe exposure to personnel, the site safety officer will be consulted as to the delay of sampling until unsafe conditions no longer exist.
- Hard hats will be worn if a winch and davit are used for equipment deployment and retrieval.
- The boat will be inspected each day to ensure that it is in sound working order and that all applicable U.S. Coast Guard requirements are met.
- A VHF radio and cellular telephone will be turned on at all times when the boat is in operation.